

Abstract

A fuel cell system has a fuel cell (1) performing power generation as a result of reactions in supplied gases, a humidifying device (34) for humidifying at least one supplied gas by using water from water tank (31), and a coolant temperature regulation device (21, 22, 25, 26, 27, 28, 51) for regulating the temperature of the coolant flowing within the fuel cell (1) in order to control the temperature of the fuel cell (1), and a defrosting device (61). The defrosting device (61) melts ice in the water tank (31) during a startup operation of the fuel cell system by applying heat contained in the coolant to the ice. Here, the coolant has an increased temperature as a result of waste heat produced during power generation inside the fuel cell (1).